ASSESSING THE FUTURE MARKET FOR SUNGUARD SERVICES

INPUT

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I MANAGEMENT SUMMARY

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I MANAGEMENT SUMMARY

- Sungard currently has approximately a 13% share of the roughly one thousand large commercial sites with IBM compatible CPUs.

- This total market is growing relatively slowly, at 3% annually; however, the actual market (that is, companies with an inclination to have an effective backup program) may grow at a rate closer to 10% annually.

- In large part, the actual market growth will be due to the increased dependence of many companies (especially those in finance and manufacturing) on on-line transaction processing.

- However, the really impressive growth rates in processing will not take place in the centralized data processing center handling on-line transactions.

  - Decentralized and/or analytic processing will show the highest growth rates in the 1980s, as shown in Exhibit I-1.

  - The key variables are:

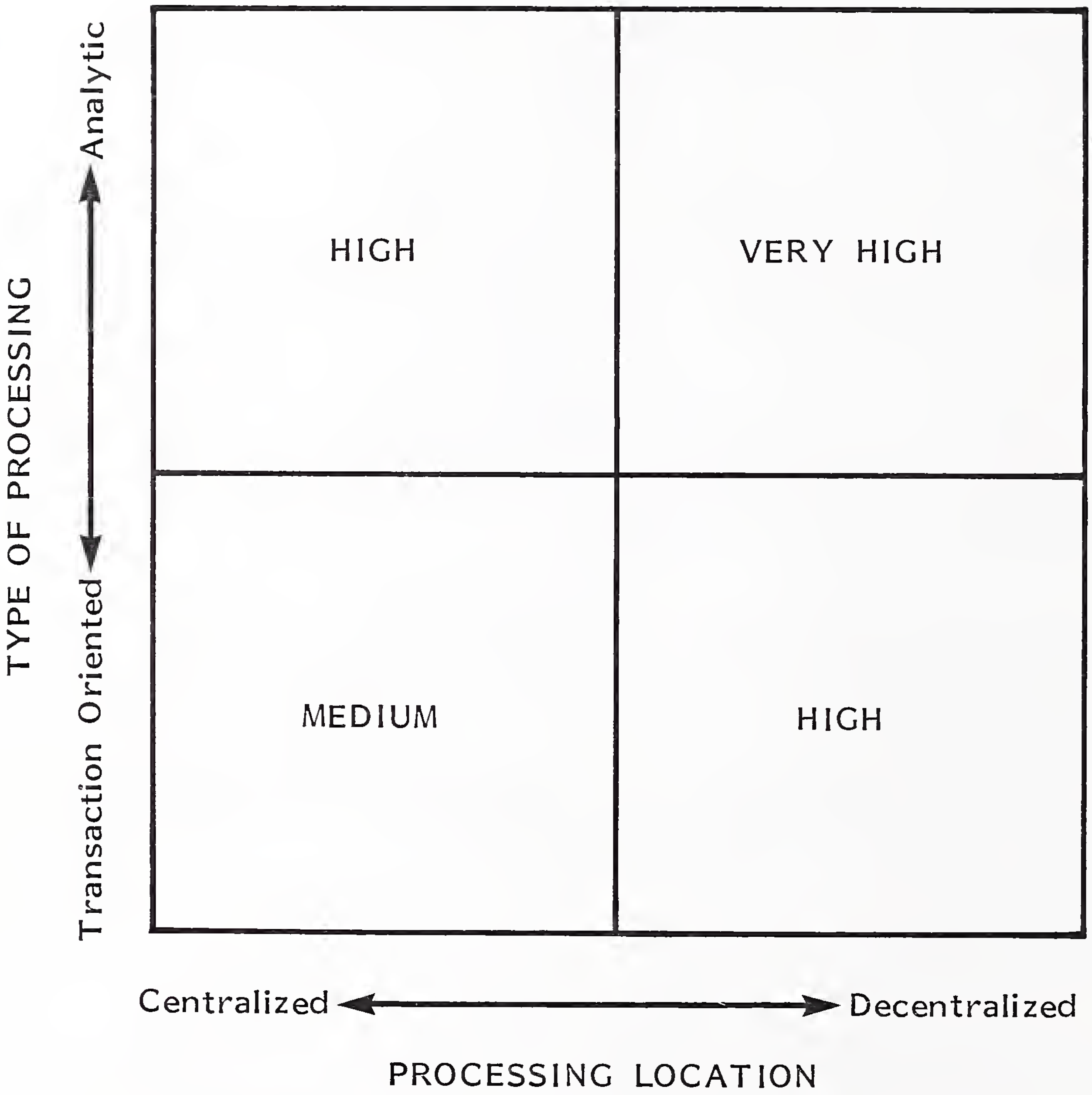
    - Volume.

    - Time dependence (e.g., financial settlements).

    - Dollar impact (e.g., accounts receivable, production).

EXHIBIT I-1

1980-1990 PROCESSING GROWTH RATES



- Other important factors which will affect a changing market are:

  - Data issues (complexity, synchronization).

  - Communications (networks, satellites).

  - Experience with actual disasters.

- Some factors will have only a marginal effect on the Sungard business; i.e., processor architecture and general and regional economic factors.

- INPUT recommends that Sungard management stay abreast of these changes and, to the extent possible, anticipate them. Two key issues where additional research is required are:

  - To what extent are backup and recovery becoming more important to MIS and general management, and what are the reasons for this?

  - Are 4341 users a new kind of backup market?

II BACKGROUND OF THE STUDY

II BACKGROUND OF THE STUDY

- In May 1982, Sun Information Systems requested that INPUT perform a study that would analyze the factors affecting future demand for the Sungard recovery service.

- Sun wished to understand the major forces which would affect demand for the Sungard service over the next five years.

- Sun also wished to learn the current and estimated future market size by installation size, industry, and geographic region.

- For purposes of this analysis, installations were sized into two groups, as shown in Exhibit II-1.

    - The IBM 4300 series was excluded by Sun from this site universe.

- Sites were broken down into the categories shown in Exhibit II-2.

- The nine standard census regions were used for analytic purposes, as shown in Exhibit II-3.

- INPUT used the following sources in preparing this report:

    - Special tabulations by the Computer Intelligence Corp. of current U.S. computer installations, using the sizing criteria shown in Exhibit II-1.

EXHIBIT II-1

INSTALLATION SIZE CATEGORIES

SIZE	CPU TYPES	NUMBER PER SITE
Medium	IBM 3031, 3032 NAS AS/4, AS5	2 or More per Site
Large	IBM 3033, 3081 Amdahl (all) NAS AS/6, AS/7	1 or More per Site

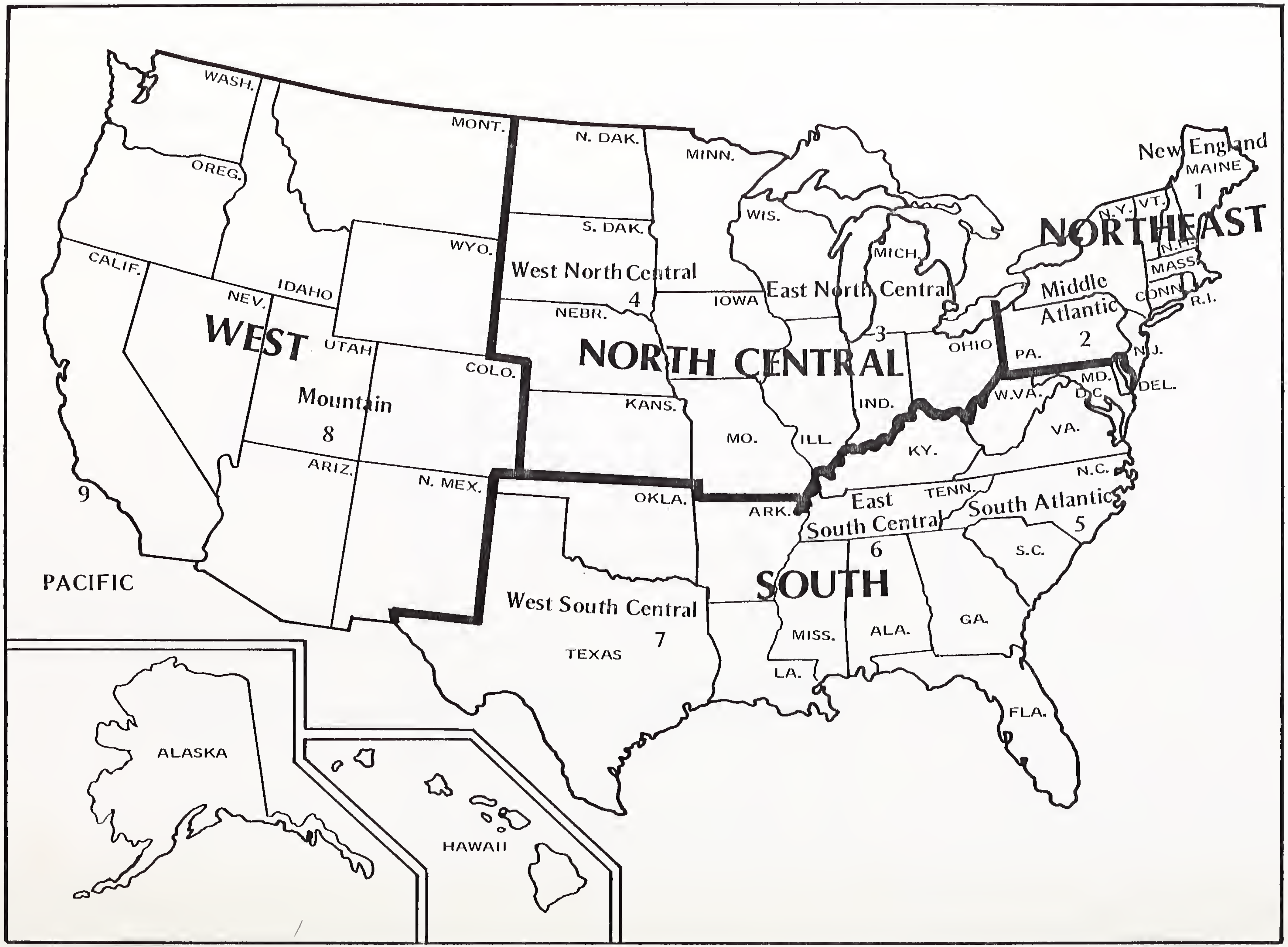
EXHIBIT II-2

INDUSTRY GROUPS

- Manufacturing
- Utilities/Transportation
- Insurance
- Finance
  - Banks
  - Other
- Other Business
  - Service
  - Computer Service
  - Wholesale/Retail
  - Miscellaneous
- Other
  - Hospital
  - University
  - Government

EXHIBIT II-3

REGIONS AND GEOGRAPHIC DIVISIONS OF THE UNITED STATES



        - According to Computer Intelligence Corp., their data for these large CPUs are over 90% complete. (This would fall to 60% to 70% for 4300-type machines.)

    - Other INPUT studies on security and backup.

    - Other market sizing studies.

    - Data from INPUT's files and proprietary data base.

    - Senior staff experience and knowledge.

- A management presentation of the material in this report was made to personnel from Sun Information Services Company and Sungard at Sungard's offices in Philadelphia on June 23, 1982.

- The remainder of this report is arranged as follows:

    - Chapter III describes the forces affecting the demand for backup and recovery services.

    - Chapter IV provides market projections over the next five years.

    - Chapter V provides conclusions and recommendations.

III FORCES AFFECTING DEMAND FOR BACKUP AND RECOVERY SERVICES

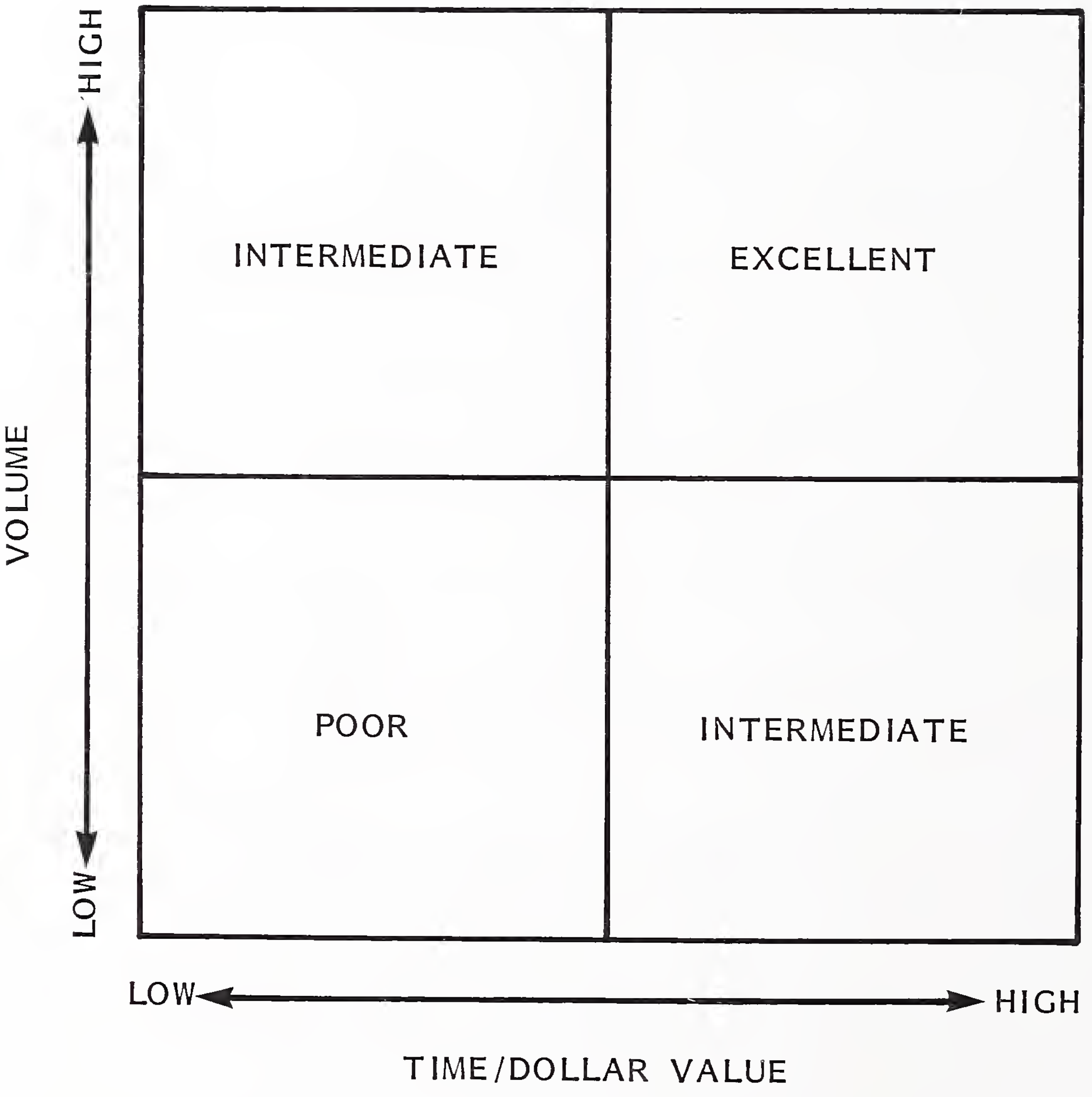
III FORCES AFFECTING DEMAND FOR BACKUP AND RECOVERY SERVICES

A. ON-LINE TRANSACTIONS

- The most significant factor affecting the need and demand for backup and recovery services will be the extent and growth of on-line transaction processing.
  - This usually determines the criticality of EDP for a firm within an industry as well as between industry groups.
- These factors reinforce one another, as shown in Exhibit III-1.
  - The best prospects will be those with high volumes of on-line transactions that have a high time/dollar value.
- The extent to which industry groupings are planning to further increase their dependence on on-line transactions is the chief determinant of future needs.
- Certain groups are expected to have a high dependence on EDP. These include:
  - Banks and brokerages, because of:
    - Expanding networks.

EXHIBIT III-1

EFFECTS OF TRANSACTION INTENSITY ON BACK UP MARKET



    - Increased importance of real-time information.

  - Manufacturing, because of Manufacturing Resource Planning (MRPII) networks.

    - CAD/CAM.

  - Data processing service bureaus, because of:

    - Expanding on-line services.

    - Market image considerations as competitive in-house networks become more reliable.

- Other industry groups will not be as dependent on EDP. These include:

  - Insurance.

    - It will have networks, but fewer real-time functions.

  - Utilities.

    - Their on-line networks typically serve subsidiary roles.

- The nonprofit area will have much less dependence.

  - Civilian agencies are generally backward.

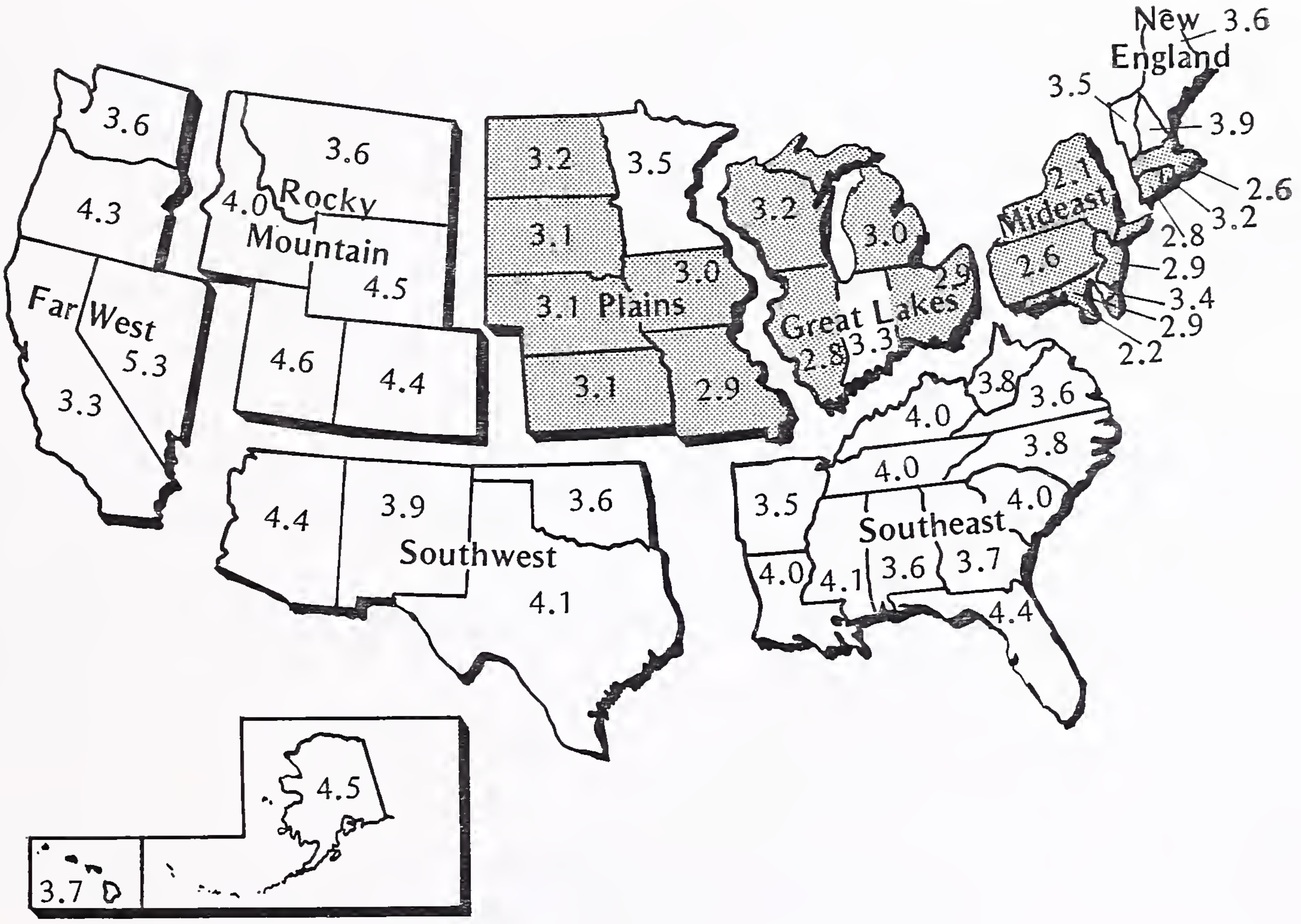
  - The military is focusing on embedded computer (weapons) systems development.

B. EXTERNAL EVENTS

- Either extreme of economic growth is favorable to backup:
    - Very low growth produces fear of social unrest and heightens the importance of security.
    - Very high growth produces business expansion, increases in profitability, and increases in discretionary expenditures.
- The current recession should have only short-term negative effects on new business.
    - In the longer run, general economic factors should be neutral.
- Growth is not, however, expected to be uniform geographically. Census projections made in 1980 indicate above average growth in the South and West, as shown in Exhibit III-2.
    - Since these projections were made, preliminary data from the 1980 census indicate that the Plains and Great Lakes regions will perform even worse than expected earlier.
- However, regional growth differences should not have significant effects, especially in the shorter run, on the Sungard market.
    - Most recent business growth has taken place in small business units; these are not potential Sungard customers.

EXHIBIT III-2

AVERAGE ANNUAL GROWTH RATE IN TOTAL PERSONAL INCOME, 1978-2000



UNITED STATES 3.3%

☐ Average or Above Average 3.3-5.3%

▨ Below Average 2.1-3.2%

  - While economic growth will increasingly take place in the South and West, there will be a much slower migration of large data processing centers to these areas. (These days, most movement of corporate headquarters and large data processing centers is within the same metropolitan area.)

- Mergers are the most likely event to affect the Sungard market in the next five years.

- Mergers are and will become an even more important factor for financial institutions; i.e., brokers, insurance companies, and, especially, banks.

- This will have both positive and negative effects for Sungard.

  - The positive effects are:

    - Mergers increase the complexity of processing.

    - Mergers of medium-sized firms can create a more likely Sungard candidate.

  - Negative effects include:

    - The merger of already-large firms reduces the number of buying units.

    - Merger constituents' data centers could be used for in-house backup.

- On balance, INPUT believes that there will be some shrinkage in the Sungard market because of the effects of mergers. (These are quantified in Chapter IV.)

C. TECHNOLOGY

- Local backup arrangements are increasingly being recognized as not viable.
- Similarly, reversion to manual systems is becoming impractical for entrenched on-line systems.
- Geographic partitioning of large EDP operations can be effective if well planned.
    - It is, however, more expensive than a single center and there are potential telecommunications problems and serious data synchronization problems.
- Real distributed data processing, i.e., self-sufficient nodes with a central node that has redundant data and processing, will be the issue for the 1980s.
    - Few exist now, mainly because the data issues are unsolved.
    - Small standalone systems are not an alternative.
- Another issue that is emerging is that as EDP becomes more important to firms, it may prove harder to be backed up externally.
- The factors include:
    - Much larger processors.
        - A 3033 is rated at five MIPs.
        - A 3081 is rated at 10-14 MIPs.
        - By the mid-1980s, 20-40 MIP processors will be common.

  - Increased data storage and by the mid-1980s, very high capacity including optical storage.

  - "Next generation" data communication networks.

  - Increased application complexity and interrelatedness: the kernel to transport will increase.

- Satellite technology will be both a plus and minus for Sungard.

  - A plus because it will be easier for Sungard to back up communications network systems.

  - A minus because it will be easier for multilocation firms to back themselves up.

- Tandem-type machines/networks will also be an option especially after a competitive IBM product is announced.

- IBM issues are an important subset of technology issues. Large system architecture will be:

  - Increasingly System 38-based.

  - An expected 1984 announcement will start the migration of the MVS operating system.

  - This could lead to a "virtual" backup network and could be favorable for Sungard.

- Equally important is the IBM strategy for its 4341 machine base.

  - Will it be a subsidiary processor or main processor?

- There has been no straightforward migration path from the 4341-2 to the 3033 in the past.

    - However, 4341-2 is similar architecturally to the 3081.

    - A 4351 announcement is expected that could be a bridge from the 4300 to the 308X series.

- Exhibit III-3 shows current IBM mainframe relationships.

- The 4341 issue is important since there are over 6,000 installed and they represent more power than a 370/158.

- A related significant issue is that at least one, and possibly most, of the traditional non-IBM architecture mainframe companies (the "BUNCH") will drop out of the super-MIP race causing a slow rise in the IBM-compatible market share for large machines.

EXHIBIT III-3

IBM MAINFRAME EVOLUTION

370	303X	4300	308X	MIPs
		4341-1		0.8
158				0.9
158-3				1.0
	3031			1.2
		4341-2		1.3
158-MP				1.7
168				2.4
	3032			2.6
168-3				2.7
	3033S			2.9
			3083E	3.0
168-MP				4.6
	3033 N/U			4.9
			3083B	5.6
			3083J	7.5
	3033 AP/MP			8.4
			3081D	9.0-10.0
			3081K	13.8

IV MARKET PROJECTIONS

IV MARKET PROJECTIONS

A. CURRENT MARKET

- Exhibit IV-1 shows the current first quarter (1982) reported number of IBM sites by region, using the site sizing methodology described in Chapter II.
    - The Sungard penetration of commercial sites is 13%, as shown in Exhibit IV-2.
- Exhibit IV-3 summarizes site distribution by region.
    - Exhibits IV-4 to IV-12 show counts by industry and region.
- However, the "other" category (i.e., noncommercial organizations) has not been a good market in the past and does not show a strong likelihood of becoming so in the future.
    - In addition, the medium-sized site market will prove to be less and less of a market in the future: either "graduating" to large machines or "sinking" into the 4300-type category.
    - Consequently, for analytic purposes it is useful to isolate the large commercial sites. These are arranged in descending order in Exhibit IV-13.

EXHIBIT IV-1

NUMBER OF IBM SITES BY INDUSTRY: TOTAL U.S.

TYPE OF INDUSTRY	MEDIUM	LARGE	TOTAL
Manufacturing	34	326	360
Utilities/Transportation			
Utilities	13	119	132
Transportation	7	40	47
Subtotal	20	159	179
Insurance	8	141	149
Finance			
Banks	27	122	149
Other	2	24	26
Subtotal	29	146	175
Other Business			
Service	3	40	43
Computer Service	14	63	77
Wholesale/Retail	10	62	72
Miscellaneous	4	6	10
Subtotal	31	171	202
Other			
Hospital	2	15	17
University	8	53	61
Government	34	91	125
Subtotal	44	159	203
TOTAL	166	1,102	1,268

Source: Computer Intelligence Corp.

EXHIBIT IV-2

SUNGARD PENETRATION OF IBM SITES BY INDUSTRY: TOTAL U.S.

TYPE OF INDUSTRY	TOTAL SITES	SUNGARD	
		Number	Percent
Manufacturing	360	55	15%
Utilities/Transportation			
Utilities	132	14	17
Transportation	47	1	2
Subtotal	179	15	8%
Insurance	149	22	15%
Finance			
Banks	149	33	22
Other	26	4*	15
Subtotal	175	37	21%
Other Business			
Service	43	4*	9
Computer Service	77	–	–
Wholesale/Retail	72	9	13
Miscellaneous	10	1*	10
Subtotal	202	14	7%
Total Commercial	1,065	143	13%
Other		1*	–
Hospital	17	3	18
University	61	–	–
Government	125	–	–
Subtotal	203	4	2%
TOTAL	1,268	147	12%

* Added to this category from four unclassified companies

EXHIBIT IV-3

NUMBER OF IBM SITES BY CENSUS REGION

REGION	INSTALLATION SIZE		
	MEDIUM	LARGE	TOTAL
Region 1 (New England)	7	62	69
Region 2 (Middle Atlantic	43	193	236
Region 3 (East North Central)	29	239	268
Region 4 (West North Central)	16	86	102
Region 5 (South Atlantic)	24	153	177
Region 6 (East South Central)	7	46	53
Region 7 (West South Central)	14	120	134
Region 8 (Mountain)	9	47	56
Region 9 (Pacific)	17	156	173
TOTAL	166	1,102	1,268

Source: Computer Intelligence Corp.

EXHIBIT IV-4

NUMBER OF IBM SITES BY INDUSTRY: REGION ONE (NEW ENGLAND)

TYPE OF INDUSTRY	MEDIUM	LARGE	TOTAL
Manufacturing	3	18	21
Utilities/Transportation			
Utilities	1	5	6
Transportation	1	0	1
Subtotal	2	5	7
Insurance	0	19	19
Finance			
Banks	1	5	6
Other	0	1	1
Subtotal	1	6	7
Other Business			
Service	1	2	3
Computer Service	0	6	6
Wholesale/Retail	0	0	0
Miscellaneous	0	0	0
Subtotal	1	8	9
Other			
Hospital	0	1	1
University	0	4	4
Government	0	1	1
Subtotal	0	6	6
TOTAL	7	62	69

EXHIBIT IV-5

NUMBER OF IBM SITES BY INDUSTRY: REGION TWO (MIDDLE ATLANTIC)

TYPE OF INDUSTRY	MEDIUM	LARGE	TOTAL
Manufacturing	13	59	72
Utilities/Transportation			
Utilities	1	27	28
Transportation	1	5	6
Subtotal	2	32	34
Insurance	3	25	28
Finance			
Banks	8	27	35
Other	0	9	9
Subtotal	8	36	44
Other Business			
Service	1	7	8
Computer Service	2	12	14
Wholesale/Retail	5	1	6
Miscellaneous	3	2	5
Subtotal	11	22	33
Other			
Hospital	0	1	1
University	1	6	7
Government	5	12	17
Subtotal	6	19	25
TOTAL	43	193	236

EXHIBIT IV-6

NUMBER OF IBM SITES BY INDUSTRY: REGION THREE (EAST NORTH CENTRAL)

TYPE OF INDUSTRY	MEDIUM	LARGE	TOTAL
Manufacturing	5	97	102
Utilities/Transportation			
Utilities	4	25	29
Transportation	0	8	8
Subtotal	4	33	37
Insurance	1	36	37
Finance			
Banks	4	16	20
Other	0	3	3
Subtotal	4	19	23
Other Business			
Service	0	5	5
Computer Service	3	3	6
Wholesale/Retail	3	19	22
Miscellaneous	1	1	2
Subtotal	7	28	35
Other			
Hospital	1	3	4
University	1	12	13
Government	6	11	17
Subtotal	8	26	34
TOTAL	29	239	268

EXHIBIT IV-7

NUMBER OF IBM SITES BY INDUSTRY: REGION FOUR (WEST NORTH CENTRAL)

TYPE OF INDUSTRY	MEDIUM	LARGE	TOTAL
Manufacturing	4	15	19
Utilities/Transportation			
Utilities	0	10	10
Transportation	0	8	8
Subtotal	0	18	18
Insurance	1	14	15
Finance			
Banks	2	9	11
Other	0	2	2
Subtotal	2	11	13
Other Business			
Service	0	4	4
Computer Service	2	5	7
Wholesale/Retail	2	7	9
Miscellaneous	0	0	0
Subtotal	4	16	20
Other			
Hospital	0	1	1
University	1	3	4
Government	4	8	12
Subtotal	5	12	17
TOTAL	16	86	102

EXHIBIT IV-8

NUMBER OF IBM SITES BY INDUSTRY: REGION FIVE (SOUTH ATLANTIC)

TYPE OF INDUSTRY	MEDIUM	LARGE	TOTAL
Manufacturing	3	29	32
Utilities/Transportation			
Utilities	0	17	17
Transportation	0	8	8
Subtotal	0	25	25
Insurance	2	15	17
Finance			
Banks	2	21	23
Other	0	2	2
Subtotal	2	23	25
Other Business			
Service	0	4	4
Computer Service	2	16	18
Wholesale/Retail	0	4	4
Miscellaneous	0	1	1
Subtotal	2	25	27
Other			
Hospital	1	1	2
University	1	10	11
Government	13	25	38
Subtotal	15	36	51
TOTAL	24	153	177

EXHIBIT IV-9

NUMBER OF IBM SITES BY INDUSTRY: REGION SIX (EAST SOUTH CENTRAL)

TYPE OF INDUSTRY	MEDIUM	LARGE	TOTAL
Manufacturing	4	9	13
Utilities/Transportation			
Utilities	0	4	4
Transportation	0	1	1
Subtotal	0	5	5
Insurance	1	10	11
Finance			
Banks	2	10	12
Other	0	0	0
Subtotal	2	10	12
Other Business			
Service	0	3	3
Computer Service	0	1	1
Wholesale/Retail	0	1	1
Miscellaneous	0	0	0
Subtotal	0	5	5
Other			
Hospital	0	1	1
University	0	1	1
Government	0	5	5
Subtotal	0	7	7
TOTAL	7	46	53

EXHIBIT IV-10

NUMBER OF IBM SITES BY INDUSTRY: REGION SEVEN (WEST SOUTH CENTRAL)

TYPE OF INDUSTRY	MEDIUM	LARGE	TOTAL
Manufacturing	2	36	38
Utilities/Transportation			
Utilities	4	12	16
Transportation	1	2	3
Subtotal	5	14	19
Insurance	0	8	8
Finance			
Banks	2	9	11
Other	1	3	4
Subtotal	3	12	15
Other Business			
Service	0	6	6
Computer Service	0	8	8
Wholesale/Retail	0	13	13
Miscellaneous	0	1	1
Subtotal	0	28	28
Other			
Hospital	0	4	4
University	4	8	12
Government	0	10	10
Subtotal	4	22	26
TOTAL	14	120	134

EXHIBIT IV-11

NUMBER OF IBM SITES BY INDUSTRY: REGION EIGHT (MOUNTAIN)

TYPE OF INDUSTRY	MEDIUM	LARGE	TOTAL
Manufacturing	0	15	15
Utilities/Transportation			
Utilities	1	9	10
Transportation	2	2	4
Subtotal	3	11	14
Insurance	0	1	1
Finance			
Banks	2	6	8
Other	0	2	2
Subtotal	2	8	10
Other Business			
Service	0	0	0
Computer Service	0	1	1
Wholesale/Retail	0	1	1
Miscellaneous	0	1	1
Subtotal	0	3	3
Other			
Hospital	0	0	0
University	0	2	2
Government	4	7	11
Subtotal	4	9	13
TOTAL	9	47	56

EXHIBIT IV-12

NUMBER OF IBM SITES BY INDUSTRY: REGION NINE (PACIFIC)

TYPE OF INDUSTRY	MEDIUM	LARGE	TOTAL
Manufacturing	0	48	48
Utilities/Transportation			
Utilities	2	10	12
Transportation	2	6	8
Subtotal	4	16	20
Insurance	0	13	13
Finance			
Banks	4	19	23
Other	1	2	3
Subtotal	5	21	26
Other Business			
Service	1	9	10
Computer Service	5	11	16
Wholesale/Retail	0	16	16
Miscellaneous	0	0	0
Subtotal	6	36	42
Other			
Hospital	0	3	3
University	0	7	7
Government	2	12	14
Subtotal	2	22	24
TOTAL	17	156	173

EXHIBIT IV-13

LARGE COMMERCIAL SITES

REGION	LARGE COMMERCIAL SITES	
	Number	Percent of Total
*East North Central	213	23%
*Middle Atlantic	174	19
Pacific	134	14
South Atlantic (Southeast)	117	12
West South Central (Southwest)	98	10
West North Central	74	8
New England	56	6
East South Central	39	4
Mountain	38	4

* Current Sungard Territory

- Sungard's two current markets are in first and second place.

- The Pacific, Southeast, and Southwest are bunched in the next three spots.

- The Southeast has the disadvantage that its sites are more dispersed than in either the Pacific (California) or the Southwest (Texas).

B. PROJECTIONS

- INPUT projects that the potential market for Sungard services will grow at approximately 3% a year to 1987, as shown in Exhibit IV-14.

- However, the potential market includes companies that do not at this time have any inclination to use Sungard's services. This is estimated to be 50% currently. INPUT believes that this proportion will drop to 25% by 1987 because:

    - Both the objective and perceived dependence of business operations on data processing will increase.

    - There is likely to be at least one major disaster in the period that will focus attention on preventive measures.

- This means that the actual market will increase about 10% annually, as shown in Exhibit IV-14.

C. PROJECTION OF COMPUTER RESOURCE DISTRIBUTION

- Equally significant factors, in INPUT's opinion, are the changes likely to occur in the location of computing resources and in the types of processing.

EXHIBIT IV-14

SUNGARD MARKET

MARKET	NUMBER OF SITES					
	1982	1983	1984	1985	1986	1987
Potential	1,160	1,190	1,200	1,220	1,235	1,260
Actual	580	655	720	790	865	945

Source: Appendix A

- Exhibit IV-15 shows overall computer resource usage growing by a factor of 15 in the 1980-1990 period.

  - Centralized transaction processing grows three times in absolute terms. This is due to the large amount of resystemization planned with a much higher proportion of on-line usage, DBMS, etc.

  - Centralized analytic work grows by a factor of 10.

  - The nontraditional locus of computing (distributed, standalone, office, personal computing) will grow at a tremendous rate (from a very small base).

- The significance of this for Sungard is that by 1990 their target market, the large EDP shop, will be less than 10% of the possible market.

  - In coming years Sungard should pay special attention to these other, rapidly growing parts of the market; e.g.:

    - What are the backup and recovery needs of dispersed processing? How will they change? What can an outside entity do to help solve problems?

    - Is analytic processing "important" enough to need backup? How time sensitive is it? Is processing backup or a functionally equivalent service needed?

- Computer service companies could prove to be significant competition in these nontraditional areas.

  - They could provide on-site (and "virtual" on-site) services.

  - Security/backup could come to be a selling point for using an RCS application; e.g., program development, banking services.

EXHIBIT IV-15

ESTIMATED DISTRIBUTION OF COMPUTER RESOURCES IN FORTUNE 1000-SIZED BUSINESS: 1980 AND 1990

1980: RELATIVE RESOURCES						
COMPUTER RESOURCES	TRADITIONAL CENTRALIZED PROCESSING		DISPERSED PROCESSING		TOTAL	
	1980	1990	1980	1990	1980	1990
Transaction Processing	0.5 (50%)	1.5 (10%)	0.1 (10%)	2.2 (15%)	0.6 (60%)	3.7 (25%)
Analytic/DSS	0.3 (30%)	3.8 (25%)	0.1 (10%)	7.5 (50%)	0.4 (40%)	11.3 (75%)
TOTAL	0.8 (80%)	5.3 (35%)	0.2 (20%)	9.7 (65%)	1.0(100%)	15.0(100%)

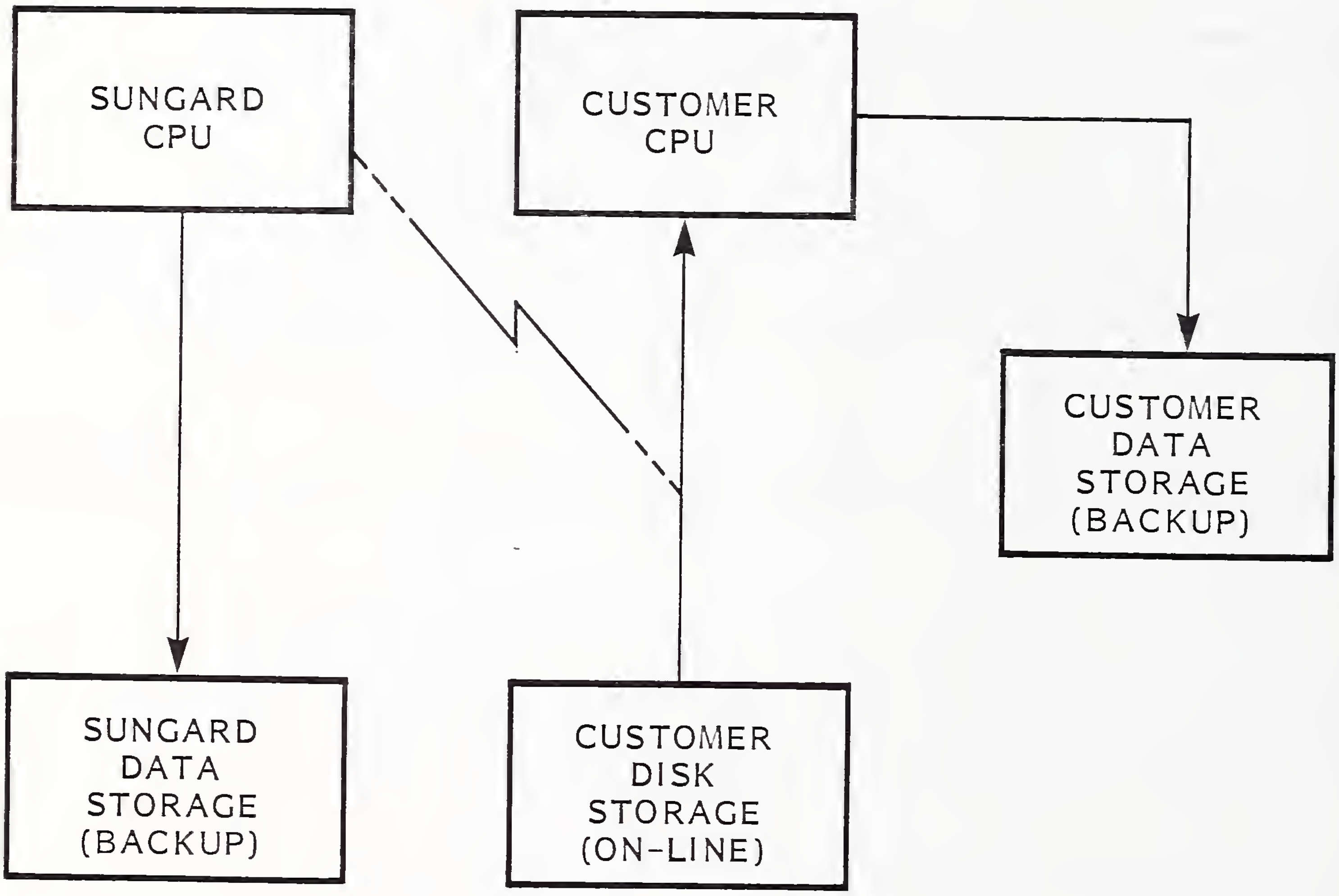
Source: Appendix B

  - RCS firms could sell standard applications as a backup for similar company-developed applications; e.g., billing/accounts receivable.

- Another future possibility is that as processing power, storage and, to an extent, communications become much less expensive, future backup requirements will be more for data backup than for processing backup, as shown in the schematic in Exhibit IV-16.

EXHIBIT IV-16

OFF-SITE DATA BACK UP SERVICE


SUNGARD CPU
CUSTOMER CPU
CUSTOMER DATA STORAGE (BACKUP)
SUNGARD DATA STORAGE (BACKUP)
CUSTOMER DISK STORAGE (ON-LINE)

V CONCLUSIONS AND RECOMMENDATIONS

V CONCLUSIONS AND RECOMMENDATIONS

A. CONCLUSIONS

- Both the real and perceived need for backup and recovery services will increase in coming years and Sun is well positioned to take advantage of these needs.
    - However, the needs will become more complex over time. Supplying raw backup processing capability will become just one, and not always the most important, component of a backup and recovery service.

- INPUT sees nine factors as having a current or future impact on Sungard's business:
    - Transaction processing.
    - Analytic processing.
    - Dispersed processing.
    - Data issues.
    - Communications.

  - Processor architecture.
  - Regional factors.
  - General economic factor.
  - Disaster experiences.

- Few of these will have the same importance over time, however.
  - The amount of transaction processing is now the single most important factor by far. This importance will diminish somewhat over time as processing is dispersed and as communications technology improves.
  - Analytic and dispersed processing are both fairly unimportant issues now. They will both increase rapidly in importance under the impact of "MIPs to the masses."
  - Data issues are important now and will continue to increase in importance as data processing becomes more complex and embedded in organizations.
  - Communications will become much more important in the short and medium term as new technology replaces old and, especially, as satellite-based networks come into place. The Bell system breakup, too, will increase both opportunities and problems. However, these basically technical issues will begin to be solved within approximately five years.
  - IBM processor architectures will change somewhat, but the migration will have only a moderate effect on Sungard.
  - Regional economic factors will slowly become more important, while general economic factors will be even less important.

- Disaster experience is the "wild card." To date there have been few, if any, unambiguous disasters which a Sungard would have prevented. A disaster will occur. Its effect on Sungard business will depend on whether it happens to a Sungard customer or not and the recovery outcome, as shown in Exhibit V-1.

- The different effects over time are summarized in Exhibit V-2.
  - None of these factors have a solely negative effect for Sungard.
  - All, however, will need ongoing tracking and analysis if Sungard is to take advantage of them and improve its present 13% market share.

B. RECOMMENDATIONS

- INPUT believes that the path to dominating the backup and recovery market in the 1980s is to anticipate the coming changes and to provide services to meet the needs of a changing environment.

- There are several immediate issues on which Sun should endeavor to become fully informed:
  - How important are backup and recovery issues to each corporate component; i.e., MIS department, key users, top management? (Note: these data would solidify the estimates made in Chapter IV-B.)
    - Is the amount of dependence on data processing correctly assessed?
    - How realistic are current disaster plans?

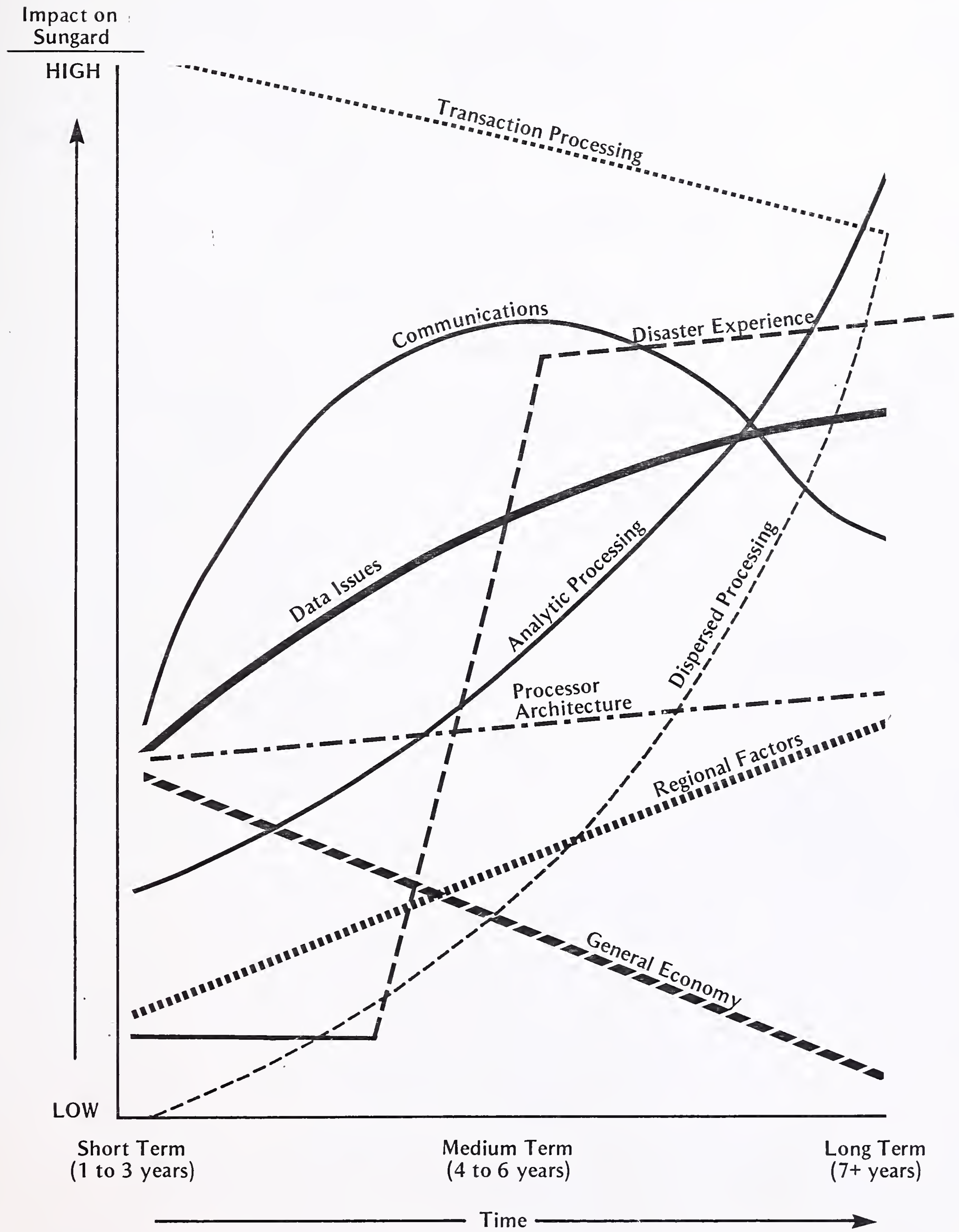
EXHIBIT V-1

DIFFERENTIAL EFFECTS OF DISASTER OCCURRENCE: FAVORABLE AND UNFAVORABLE EFFECTS ON SUNGARD BUSINESS

DISASTER OCCURS TO	RECOVERY OUTCOME	
	GOOD	BAD
Sungard Customer	Favorable	Very Unfavorable
Customer of a Sungard Competitor	Unfavorable	Very Favorable
A site without any outside backup	Very Unfavorable	Favorable

EXHIBIT V-2

IMPACT OF DIFFERENT FACTORS ON SUNGARD



  - Are the technical issues understood (data issues, communications, etc.)?
  - What are the special needs of analytic users of the central system?

- How do 4341 users differ from conventional mainframe users?

  - Where 4341s are used in a dispersed or secondary mode, how does this affect backup?

- How have recent mergers affected backup planning?

APPENDIX A: GROWTH IN MEDIUM AND LARGE INSTALLATION SITES: 1982-1987

APPENDIX A: GROWTH IN MEDIUM AND LARGE INSTALLATION SITES: 1982-1987

DEFINITIONS

- Sungard defines its present market as either at "large" sites (a 3033 or larger) or "medium" sites (two or more of a 360/158, 360/168, 3031 or 3032.)
- 4341s are not currently considered to be in their target market.
- There are 950 large sites and 125 medium sites in the commercial marketplace (nongovernment, nonhealth, and education.)
  - The source of this information is Computer Intelligence Corp. (CIC).

ASSUMPTIONS (BY INPUT)

- The number of large sites will grow at 5% a year.
- The number of medium sites will decline by 15% annually. Some will graduate into the large category; others will fall out of the category completely (by getting, for example, 4300 machines.)

- The 1982 figure is understated by 10%.

- The number of potential customers will be further reduced by mergers:

  - 50 banks
  - 25 insurance companies
  - 60 other companies

  -135 total

- These mergers would be most common in the 1984-1986 period when bank mergers are likely to become legal.

- The proportion of companies interested in backup and recovery services is likely to increase from an estimated 50% to 75% in this period. This is likely to take place because:

  - Both the objective and perceived dependence of business operations on data processing will increase.

  - There is likely to be at least one major disaster in the period that will focus attention on preventive measures.

- Exhibit A-1 takes the above assumptions and quantifies the market for each year in the period.

EXHIBIT A-1

GROWTH IN LARGE INSTALLATION SITES

SITES	NUMBER OF SITES					
	1982	1983	1984	1985	1986	1987
Current "Large"	950	1,000	1,050	1,100	1,155	1,210
Current "Medium"	+125	+110	+90	+75	+65	+55
Total Sites	1,075	1,110	1,140	1,175	1,220	1,265
Sample Adjustment	+100	+110	+110	+120	+120	+130
Merger Effects (Cumulative)	-15	-30	-50	-75	-105	-135
Potential Market	1,160	1,190	1,200	1,220	1,235	1,260
Proportion Interested	50%	55%	60%	65%	70%	75%
Actual Market	580	655	720	790	865	945

APPENDIX B: ESTIMATED DISTRIBUTION OF COMPUTER RESOURCES IN FORTUNE 1000-SIZED BUSINESSES: 1980 AND 0

APPENDIX B: ESTIMATED DISTRIBUTION OF COMPUTER RESOURCES IN FORTUNE 1000-SIZED BUSINESS: 1980 AND 1990

ASSUMPTIONS

- Overall MIPs installed should increase by a factor of 10 to 20 in this ten-year period.

    - The projections in Exhibit B-1 show the installation of MIPs through 1987. Extended at the same rate of growth to 1990 would show 16,200; i.e., a growth rate with a factor of 20.

- In 1980, transaction processing was 60% of all MIPs; this will decrease to 25%, as analytic, decision support systems, management graphics, and other end user oriented uses become more widespread.

- There will be a similar change in the locus of the computing power. In 1980, 80% of computing power was still located in traditional centralized data processing centers, with the remainder evenly divided between transaction and analytic uses.

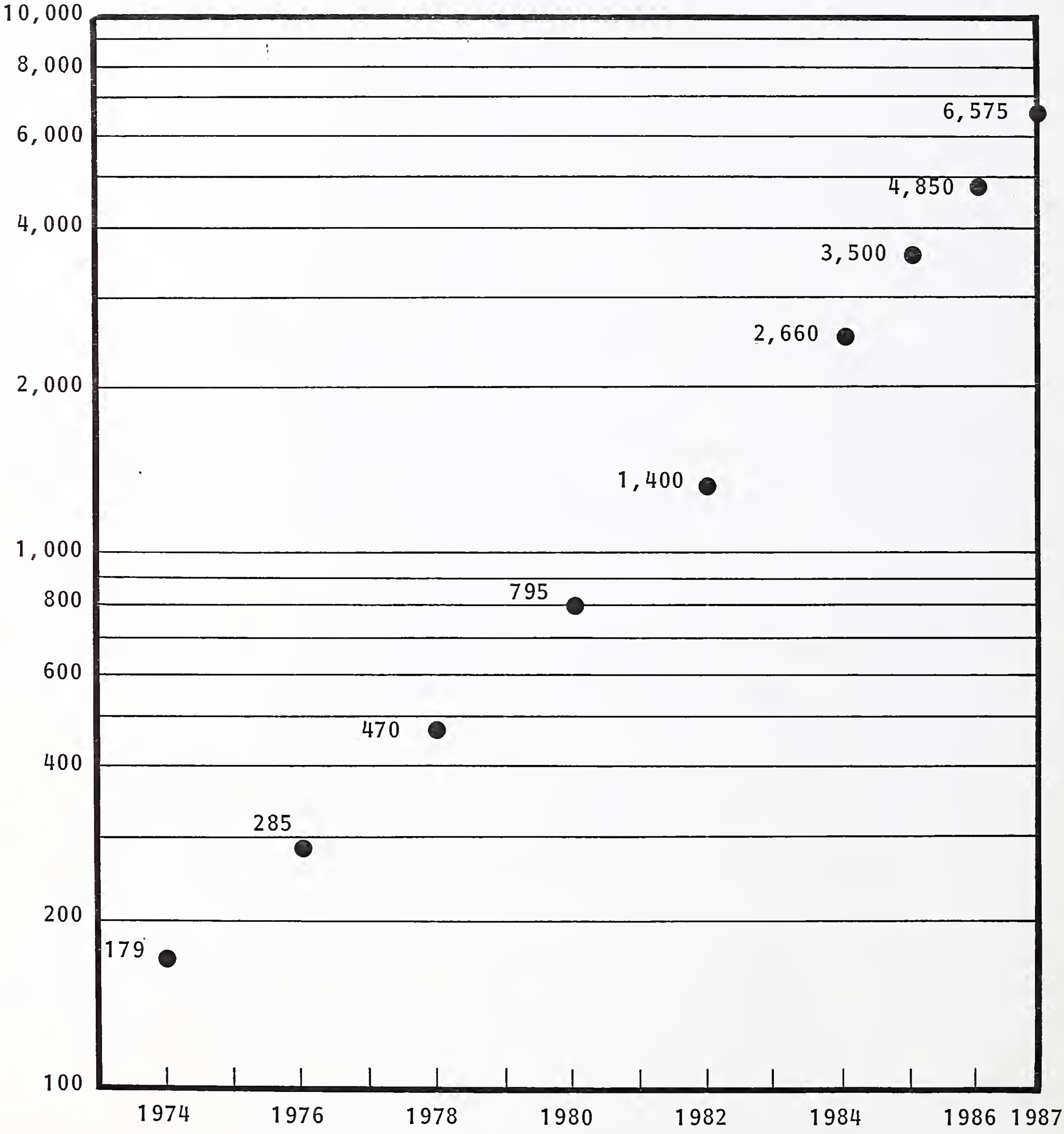
    - These nontraditional locations include satellite systems (4300-type, standalone small systems, RCS terminals, personal computers, office systems, etc.).

- By 1990, the locus of computing power will have changed: two-thirds will now be outside of the traditional environment.

EXHIBIT B-1

INSTALLED MIP GROWTH

(1971 = 100, Log Scale)



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